



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|-------------------------|------------------|
| 10/667,408 | 09/23/2003 | Matthias Boltze | 008388-09 | 1075 |
| 25570 | 7590 | 08/22/2006 | EXAMINER | |
| ROBERTS, MLOTKOWSKI & HOBBS | | | NECKEL, ALEXA DOROSHENK | |
| P. O. BOX 10064 | | | ART UNIT | |
| MCLEAN, VA 22102-8064 | | | PAPER NUMBER | |
| | | | 1764 | |
| DATE MAILED: 08/22/2006 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,408

Applicant(s)

BOLTZE ET AL.

Examiner

Alexa D. Neckel

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The term "a temperature producing spontaneous fuel vaporization" in claim 1 is a relative term which renders the claim indefinite. The term "temperature producing spontaneous fuel vaporization " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The only guidance that the examiner can find within applicant's disclosure so as to determine a possible temperature at which "spontaneous fuel vaporization", is in paragraph [0005] which recites that "complete vaporization of diesel fuel is roughly 400°C". Therefor the claim has been interpreted as a means requiring a temperature of at least 400°C.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Köhne et al. (WO 2000/06948) in view of Evers et al. (DE 4,205,212).

Art Unit: 1764

Regarding claims 1-6, Köhne et al. discloses:

a fuel cell system with a reformer (P17/L1 1-P23/L20);

a mixture formation means (Fig. 8 and 9a-9c) comprising:

- a fuel feed means (1);
- an air feed means (2);
- a mixture formation area (4);
- a fuel heating means (P16/L10-18) which achieves complete vaporization of the fuel and operates at temperatures of 520K to 880K or 246°C to 607°C (P 3/L5-9 and P 5/L27 – P 6/L5);

wherein the mixture formation area (4) is supplied with air (2) and is positioned downstream of the fuel heating (since it is disclosed as "preheating"; P 16/L10-18) and includes a swirl chamber (4) into which a nozzle (7) connected to the fuel injection means discharges (Fig. 8 and 9a-9c);

wherein the fuel heating means is positioned upstream of the fuel feed means for preheating the fuel before injection to the mixture formation area (P 16/L10-18); and

wherein air feed means (2) includes an air heater (8).

Köhne et al. does not disclose said fuel feed means comprising a pressure impulse injection means including a changeover valve and connected to the fuel nozzle.

Evers et al. teaches a fuel feed means wherein the fuel is supplied using a pressure impulse injection means including a changeover valve and connected to the fuel nozzle (abstract). Said means allows for more accurate fuel metering so that optimal operation of the combustion engine can be achieved (C 1/L 45-49).

It would have been obvious to one having ordinary skill in the art at the time of the invention to include the pressure impulse injection means including a changeover valve and connected to the fuel nozzle, as taught by Evers et al., to the mixture formation means of Köhne et al., for the purpose of improving operation by allowing for more accurate fuel metering to eventually feed to the combustion engine (18).

Regarding limitations recited in claims 1-6 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP j 21 14 and 21 15. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Response to Arguments

Status of Previous Office Action

Applicant has correctly treated the previous Office Action as being non-final. The examiner apologizes for any confusion by the typographical error which included an incorrect "Final" concluding paragraph 6 in the action.

Priority

The examiner notes that applicant's have provided a copy of the Certified front page of the priority document which was missing from the Office's electronic file.

35 USC 103

Applicant argues that Köhne et al. does not teach wherein the preheating means is constructed to preheat the fuel to a temperature that would produce the recited "temperature producing spontaneous fuel vaporization".

Firstly, it is noted that applicant's disclosure does not provide for any particular range in which to define this temperature. Applicant is attempting to require the reference to provide a level of detail which is not provided for in their own specification.

Secondly, Köhne et al. does disclose wherein the fuel pre-heating means (P16/L10-18) achieves complete vaporization of the fuel and operates at temperatures of 520K to 880K or 246°C to 607°C (P 3/L5-9 and P 5/L27 – P 6/L5).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both Evers et al. and Köhne et al. are providing a fuel feed to a combustion engine. Evers et al. also provides motivation to use their fuel feeding means for more accurate fuel metering so that optimal operation of the combustion engine. Additionally, both Evers et al. and Köhne et al. each are concerned with the timing of feed injection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa D. Neckel whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1764

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR: Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alexa D. Neckel
Primary Examiner
Art Unit 1764

August 17, 2006